

WHAT IS CLAIMED IS:

1. A liquid-crystal panel comprising a rear-emitting light source,
comprising

a liquid crystal device formed on a first substrate in which a liquid crystal
layer is sandwiched between a transparent first electrode and a transparent
5 second electrode which at least face each other and

a rear-emitting light source for the liquid crystal device formed on a
second substrate in which a thin-film flat light emitting device is sandwiched
between an optically opaque third electrode and a transparent fourth electrode
which at least face each other, wherein

10 the third electrode is a reflection film disposed in the side of the second
substrate, which reflects an outside light entering through the liquid crystal layer
into the liquid crystal layer; and

the fourth electrode is disposed facing the second electrode, and the
insulating film sandwiched between the fourth electrode and the second
15 electrode is a film continuously formed on the fourth electrode.

2. The liquid-crystal panel as claimed in Claim 1, wherein a distance
between the third electrode and the pixel electrode is smaller than a pixel
electrode pitch in the liquid crystal device.

3. The liquid-crystal panel as claimed in Claim 1, wherein the first and
the second substrates are made of glass, quartz or an organic resin.

4. The liquid-crystal panel as claimed in Claim 1, wherein the third
electrode is a reflection film for light emission in the thin-film flat light emitting

device.

5. The liquid-crystal panel as claimed in Claim 1, wherein the third electrode is a laminated structure of a transparent electrode and an opaque electrode.

6. The liquid-crystal panel as claimed in Claim 5, wherein the uppermost layer in the third electrode is a transparent electrode.

7. The liquid-crystal panel as claimed in Claim 5, wherein the uppermost layer in the third electrode is an opaque electrode.

8. The liquid-crystal panel as claimed in Claim 1, wherein the thin-film flat light emitting device is an organic EL device.

9. The liquid-crystal panel as claimed in Claim 8, wherein the protective film for protecting the organic EL device is formed on the fourth electrode.

10. The liquid-crystal panel as claimed in Claim 9, wherein the protective film covers at least the upper surface and the edge in the organic EL device which are not covered by the transparent electrode.

11. The liquid-crystal panel as claimed in Claim 9, wherein the protective film is made of SiO_2 , SiN , Al_2O_3 or AlN .

12. The liquid-crystal panel as claimed in Claim 1, wherein the substrate made of at least the organic resin comprises a barrier film at least in one side.

13. The liquid-crystal panel as claimed in Claim 12, wherein the barrier film is formed at least in the liquid crystal layer in the substrate or in the surface where the thin-film flat light emitting device is formed.

14. The liquid-crystal panel as claimed in Claim 12, wherein the barrier film is formed in the liquid crystal layer in the substrate, in the surface where the thin-film flat light emitting device is formed, or in the surface facing the above surface.

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15. The liquid-crystal panel as claimed in Claim 12, wherein the barrier film is made of an organic material consisting of a polyvinyl alcohol.

16. The liquid-crystal panel as claimed in Claim 12, wherein the barrier film is made of an organic material consisting of a polyvinyl alcohol and an organic-inorganic composite material consisting of an organic material and a clay mineral.

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17. The liquid-crystal panel as claimed in Claim 12, wherein the barrier film is made of a crystalline clay mineral.

18. The liquid-crystal panel as claimed in Claim 1, wherein the liquid crystal device has a configuration where on the first substrate are sequentially disposed a color filter film; the first electrode consisting of at least a pixel electrode and a transistor driving the pixel electrode; a first oriented film; a liquid crystal; a second oriented film; and the second electrode.

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19. The liquid-crystal panel as claimed in Claim 1, wherein the liquid crystal device has a configuration where on the first substrate are sequentially disposed the first electrode consisting of at least a pixel electrode and a transistor driving the pixel electrode; a color filter film; a first oriented film; a liquid crystal; a second oriented film; and the second electrode.

20. The liquid-crystal panel as claimed in Claim 1, wherein the liquid crystal device has a configuration where on the first substrate are sequentially disposed the first electrode consisting of at least a pixel electrode and a transistor driving the pixel electrode; a first oriented film; a liquid crystal; a second oriented film; the second electrode; and a color filter film.

21. The liquid-crystal panel as claimed in Claim 1, wherein the liquid crystal device has a configuration where on the first substrate are sequentially disposed the first electrode consisting of at least a pixel electrode and a transistor driving the pixel electrode; a first oriented film; a liquid crystal; a second oriented film; a color filter film; and the second electrode.

22. A liquid-crystal panel wherein a rear-emitting light source comprises a reflection film formed between a substrate and one surface of a thin-film flat light emitting device, and a transparent electrode formed on the other surface of the thin-film flat light emitting device; an outside light from a liquid crystal device enters the reflection film through the transparent electrode; the outside light reflected by the reflection film enters the liquid crystal device through the transparent electrode; and

the liquid crystal device is adjacent to the rear-emitting light source via a film continuously formed at least on the transparent electrode.

23. The liquid-crystal panel as claimed in Claim 22, wherein in the liquid crystal device, a liquid crystal is sandwiched at least between a pixel electrode and a counter electrode which face each other.

24. The liquid-crystal panel as claimed in Claim 22, wherein a distance between an electrode in the side in the liquid crystal device which an outside light enters and a reflection film is smaller than the pixel electrode pitch.

25. The liquid-crystal panel as claimed in Claim 22, wherein the reflection film is a driving electrode for the rear-emitting light source.

26. The liquid-crystal panel as claimed in Claim 25, wherein the driving electrode is a laminated film consisting of a transparent electrode and an opaque electrode.

27. The liquid-crystal panel as claimed in Claim 26, wherein in the laminated film, the uppermost layer film is a transparent electrode.

28. The liquid-crystal panel as claimed in Claim 26, wherein in the laminated film, the uppermost layer film is an opaque electrode.

29. The liquid-crystal panel as claimed in Claim 22, wherein a driving electrode for driving the rear-emitting light source is formed on the reflection film.

30. The liquid-crystal panel as claimed in Claim 29, wherein the reflection film is electrically conductive.

31. The liquid-crystal panel as claimed in Claim 30, wherein the reflection film and the driving electrode are separated via an insulating film.

32. The liquid-crystal panel as claimed in Claim 22, wherein the reflection film has an irregularity.

33. The liquid-crystal panel as claimed in Claim 22, wherein the thin-film flat light emitting device is an organic EL device.

34. The liquid-crystal panel as claimed in Claim 33, wherein a protective film for protecting the organic EL device is formed on the transparent electrode.

35. The liquid-crystal panel as claimed in Claim 34, wherein the protective film covers at least the upper surface and the edge in the organic EL device which are not covered by the transparent electrode.

36. The liquid-crystal panel as claimed in Claim 34, wherein the protective film is made of SiO_2 , SiN , Al_2O_3 or AlN .

37. The liquid-crystal panel as claimed in Claim 22, wherein the substrate is made of an organic resin and a barrier film is formed at least on one side of the substrate.

38. The liquid-crystal panel as claimed in Claim 37, wherein the barrier film is formed at least in the surface in the substrate where the organic EL device is formed.

39. The liquid-crystal panel as claimed in Claim 37, wherein the barrier film is formed in the surface in the substrate where the organic EL device is formed, or in the surface facing the above surface.

40. The liquid-crystal panel as claimed in Claim 37, wherein the barrier film is made of an organic material consisting of a polyvinyl alcohol.

41. The liquid-crystal panel as claimed in Claim 37, wherein the barrier film is made of an organic material consisting of a polyvinyl alcohol and an organic-inorganic composite material consisting of an organic material and a clay mineral.

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42. The liquid-crystal panel as claimed in Claim 37, wherein the barrier film is made of a crystalline clay mineral.

43. The liquid-crystal panel as claimed in Claim 22, wherein the continuously formed films include at least an insulating film, a counter electrode formed on the insulating film for the liquid crystal device and an oriented film.

44. The liquid-crystal panel as claimed in Claim 43, wherein the insulating film is a laminated film comprising at least a polarizing film.

45. The liquid-crystal panel as claimed in Claim 43, wherein the insulating film comprises at least a polarizing film and a retardation film.

46. The liquid-crystal panel as claimed in Claim 43, wherein the insulating films include at least a polarizing film, a retardation film and a color

filter film.

47. The liquid-crystal panel as claimed in Claim 22, wherein the liquid crystal device consists of at least a color filter film; a first electrode consisting of at least a pixel electrode and a transistor driving the pixel electrode; a first oriented film; a liquid crystal; a second oriented film; and a counter electrode.

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48. The liquid-crystal panel as claimed in Claim 22, wherein the liquid crystal device consists of a first electrode consisting of at least a pixel electrode and a transistor driving the pixel electrode; a color filter film; a first oriented film; a liquid crystal; a second oriented film; and a counter electrode.

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49. The liquid-crystal panel as claimed in Claim 22, wherein the liquid crystal device consists of a first electrode consisting of at least a pixel electrode and a transistor driving the pixel electrode; a first oriented film; a liquid crystal; a second oriented film; a counter electrode; and a color filter film.

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50. A liquid-crystal device comprising the liquid-crystal panel as claimed in any of Claims 1, 2 and 22.

51. The electronic device as claimed in Claim 50, comprising the liquid-crystal device.

52. The electronic device as claimed in Claim 51, wherein the electronic device is a mobile device.

53. A process for manufacturing a liquid-crystal panel, comprising the

steps of:

forming one of a counter electrode for a liquid crystal, a pixel electrode or a transistor array layer as a driving circuit on a first substrate;

5 forming a reflection film on a second substrate;

then forming a thin-film flat light emitting device;

then forming an optically functional film;

then forming an electrode facing the electrode formed on the first substrate;

10 forming a first oriented film on the electrode on the first substrate;

forming a second oriented film on the electrode on the second substrate which faces the electrode on the first substrate; and

disposing the first oriented film and the second oriented film such that these face each other and filling a liquid crystal in the space between the first oriented film and the second oriented film.

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54. The process for manufacturing a liquid-crystal panel as claimed in Claim 53, wherein the step of forming the optically functional device comprises the steps of forming a polarizing film and forming a retardation film.

55. The process for manufacturing a liquid-crystal panel as claimed in Claim 53, wherein the step of forming a thin-film flat light emitting device consists of the steps of forming an organic light-emitting layer and forming an electrode in the organic light-emitting layer.

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56. The process for manufacturing a liquid-crystal panel as claimed in Claim 53, further comprising the step of forming a protective film for protecting the thin film light emitting device after forming the thin film light emitting device.

57. The process for manufacturing a liquid-crystal panel as claimed in Claim 53, further comprising the step of forming a color filter after forming the transistor array layer.

58. The process for manufacturing a liquid-crystal panel as claimed in Claim 53, wherein the transistor array layer is formed after forming a color filter on the first substrate.